

A package comprising at least two opposite walls as well as a method for manufacturing such a package

5 The invention relates to a package comprising at least two opposite walls which are bonded together along a longitudinally extending bonding seam, each wall comprising at least two bonded-together wall members, which are folded onto each other about a fold line.

The invention also relates to a method for manufacturing such a package.

10 Such a package, which is known from US patent US-A-2,189,174, is opened by taking hold of a first pair of two bonded-together wall members being folded onto each other about a fold line with one hand and taking hold of a second pair of two bonded-together wall members being folded onto each other about a fold line with the other  
15 hand. Subsequently, said pairs or wall members are moved apart, thus breaking the bonding seam between the opposite walls and forming an opening between the walls. As long as said moving apart of said pairs of wall members is continued, the opening will increase in size until the bonding seam between the walls is fully broken.

20 If the package contains a liquid, for example, it is desirable for the opening to be comparatively limited in size, so as to avoid the risk of liquid easily flowing out of the package. Preferably, the opening is large enough to allow easy pouring of the liquid readily from the package, drinking the liquid from the package or gaining access  
25 to the liquid by means of a straw, for example, for sucking the liquid from the package by means of said straw.

The object of the invention is to provide a package in which opening of the package is much easier, with an opening of a predetermined size being obtained.

30 This object is accomplished with the package according to the invention in that parts of the walls positioned on either side of the

wall members can be moved away from each other in directions extending parallel to the longitudinal direction of the bonding seam, wherein the opposite wall members can be moved apart, bounding an opening that gives access to a space present inside the package.

5 By moving the comparatively large parts of the walls positioned on either side of the wall members away from each other, an opening bounded by the comparatively small wall members is obtained. Said opening gives access to a product present inside the package.

10 The size of the opening is determined and also maximised by the dimensions of the wall members. Undesirable opening of the package further than is necessary for gaining access to the space inside the package by exerting forces in directions extending parallel to the longitudinal direction of the bonded bonding seam is not possible, therefore. This is advantageous in particular when the package is used  
15 for a consumable liquid, such as a soft drink or an alcoholic beverage. Once the package has been opened, a person can pour the liquid directly into his/her mouth by raising the package to his/her lips or insert a straw into the opening. The comparatively limited size of the opening practically rules out the risk of spilling the consumable liquid.

20 When the opening is formed, the volume of the space present inside the package is increased. Since the volume is increased, there is no risk of the product present inside the package, such as a fluid or another material, undesirably spilling from the package. A user only needs to take hold of the parts connected by the bonding seam of the  
25 walls positioned on either side of the wall members in order to open the package. As a result, no pressure is exerted on the package by the user himself, so that the contents of the package are prevented from undesirably spilling from the package.

30 It is noted that from US patent US-A-3,038,649 there is known a package which comprises four walls that form a tetrahedron. At both ends of the package, respective pairs of walls are bonded together,

forming a bonding seam. The bonding seams extend transversely to each other. To gain access to a product contained in the package, such as a liquid, a corner portion located near one corner of the package is to be depressed into the package. To that end, the package is scored near said corner portion.

A drawback of the known package is the fact that a pressure is exerted on the package upon depressing the corner portion. As a result of said pressure being exerted on the package, the liquid contained in the package may squirt from the package. This is undesirable, of course.

Unlike the package referred to in the introduction, which is known from US patent US-A-3,038,649, the package according to the invention does not comprise a scored portion that might lead to the package being undesirably opened upon exertion of a force thereon.

The package according to the invention may be tetrahedron-shaped, but it may also have any other shape, providing the package comprises at least two opposite walls connected by a bonding seam.

When opening the package, it is preferable to take hold of that portion of the parts of the walls positioned on either side of the wall members on which the bonding seam is present. It is also possible, however, to take hold of a portion of the parts positioned on either side of the wall members located elsewhere on the package. This involves the risk of a pressure being exerted on the package, however, as a result of which the contents of the package will undesirably spill from the package after it has been opened.

One embodiment of the package according to the invention is characterized in that the wall members of one wall are positioned on a side of said one wall remote from the other wall, and vice versa.

This makes it easy to form the wall members on the walls.

Preferably, the wall members extend parallel to the walls, so that an attractive appearance is obtained, without any projecting parts being present on the package.

Preferably, the wall member abutting against a wall is bonded thereto, so that the wall members will continue to abut against the wall.

5 Yet another embodiment of the package according to the invention is characterized in that the wall members of one wall extend in a direction opposed to the direction in which the wall members of the other wall extend.

10 Since the wall members extend in opposite directions, the number of superposed wall members and walls present at the location of the wall members is comparatively limited, so that differences in thickness in the package are prevented, whilst the bonding together of the walls and the wall members can take place in a relatively simple manner.

15 Yet another embodiment of the package according to the invention is characterized in that the bonded-together wall members of a wall extend in a direction transversely to the longitudinal direction of the bonding seam over at least substantially the entire package.

20 This makes it relatively easy to bond together the wall members. In addition, the fact that the wall members can be moved apart over the entire package makes it possible to enlarge the space that is present inside the package.

25 In yet another embodiment of the package according to the invention, the walls of the package are folded double in a direction away from the bonding seam, said folded-together walls being sealed by means of a further bonding seam.

In this way a tetrahedron-shaped package is provided, in which the walls of the tetrahedron present between the bonding seams need not be provided with means that make it possible to open the tetrahedron.

30 It is also an object of the invention to provide a method which makes it possible in a simple manner to manufacture a package which is easy to open.

This object is accomplished by the method according to the invention in that longitudinal sides of a strip-shaped foil are bonded together, at least two pairs of wall members are folded onto each other about fold lines extending parallel to the longitudinal side, the wall members of each pair are bonded together, the pairs of wall members are positioned opposite each other, and the walls positioned on either side of the wall members are bonded together by means of a bonding seam extending transversely to said longitudinal sides.

The package according to the invention can thus be manufactured fully automatically, using means that are known per se, quickly and without additional parts being required.

The invention will be explained in more detail hereinafter with reference to a drawing, in which:

Fig. 1 is a perspective view of a package according to the invention;

Fig. 2 is a side elevation of the package that is shown in Fig. 1, showing the package in opened condition;

Fig. 3 is a folded-open blank of the package that is shown in Fig. 1;

Fig. 4 is a schematic, perspective view of a part of the package that is shown in Fig. 1 ;

Fig. 5 is a schematic, perspective view of the part of the package that is shown in Fig. 4, during opening of the package; and

Fig. 6 is a perspective view of a part of the package that is shown in Fig. 4, showing the package in opened condition.

In the figures, like parts are indicated by the same numerals.

Fig. 1 is a perspective view of a package 1 according to the invention, which is tetrahedron-shaped. The package 1 comprises triangular walls 2, 3, 4, 5. The walls are made of polyethylene, for example.

As is shown more clearly in Figs. 2 and 3, the package 1 comprises two pairs of wall members 6,7 and 8, 9, respectively, which are folded onto each other about a fold line 10, 11. The wall member 7, 9 is further folded, via a fold line 12, 13, onto a wall member 14, 15 that faces away from the wall member 6, 8. The walls 3, 5 abut against each other via edges 18, 19 extending over the segment 16, 17 and are bonded together by means of a heat sealing process, forming a bonding seam (not shown) extending parallel to said edges. The two pairs of wall members 6, 7 and 8, 9, respectively, are positioned opposite each other, with the wall members 6, 7 and 8, 9, respectively, extending in opposite directions.

The walls 2, 4 are connected via edges 22, 23 extending over a segment 20, 21 by means of a bonding seam formed by heat sealing. Since the edges 18, 19 and 22, 23, respectively, are evenly offset with respect to each other, the edges 18, 19 and 22, 23 extend transversely to each other, and a triangular shape of the walls 2, 3, 4, 5 is automatically obtained. Both the folded-together wall members 6, 7 and the folded-together wall members 8, 9 are present in the edge 23.

As is clearly shown in Fig. 3, the package 1 is made of a strip-shaped foil, wherein longitudinal sides 24, 25 are positioned in overlapping relationship for bonding the edges 18, 19 and 22, 23, respectively, and bonded together by means of a heat sealing process. After a first pair of edges 22, 23 have been bonded together and before the last pair of edges 18, 19 are bonded together, a material to be packaged is introduced in the space bounded by the package 1. Said material may be a liquid, for example, such as an alcoholic beverage.

A user who wishes to open the package 1 in order to use or consume its contents will take hold of the parts 26, 27 of the edges 18, 19 positioned on either side of the wall members 6-9 and move said parts 26, 27 in directions away from each other as indicated by the arrows P1, P2. The directions indicated by the arrows P1, P2 extend parallel to the

longitudinal direction of the edges 18, 19 and the bonding seam formed thereon by heat sealing. While the parts 26, 27 are being moved in the directions indicated by the arrows P1, P2, the forces being exerted on the wall members 6, 7, 8, 9, cause the wall members 6, 7, 8, 9 to pivot about the fold lines 12, 13 in the directions indicated by the arrows P3, P4, from the position that is shown in Fig. 4 to the position that is shown in Fig. 5. When the parts 26, 27 are subsequently moved in the directions indicated by the arrows P1, P2, the wall members 6, 7, 8, 9 will take up the positions as shown in Fig. 6, in which an opening 28 is formed between the wall members 6, 7, 8, 9, which opening extends into the space bounded by the package (see also Fig. 2). Further movement of the parts 26, 27 in the directions indicated by the arrows P1, P2 will result in the walls 6, 9 and 7, 8, respectively, moving into abutment with each other, causing the opening 28 to be closed again. A small opening 28 will remain at all times, however, from which liquid that is present in the package 1 may spill. The size of the opening 28 is determined and also maximised by the dimensions of the walls 6, 7, 8, 9. It is not possible, therefore, to open the package 1 undesirably any further than is necessary for gaining access to the space present inside the package 1 by exerting forces in the directions indicated by the arrows P1, P2. If a consumable liquid is present inside the package 1, a person can pour said liquid directly into his/her mouth through the opening 28 by raising the package 1 to his/her lips. It is also possible, however, to insert a straw into the opening 28.

When the package 1 is being opened, the volume of the space inside the package 1 increases as a result of the wall members 6, 7, 8, 9 being moved apart. No pressure is exerted on the package 1, therefore, so that the contents of the package 1 will not undesirably spill from said package.

If desired, it is also possible to have the user himself effect the pivoting of the wall members 6, 7 and 8, 9 in the directions

indicated by the arrows P3, P4, respectively, and only exert forces on the package 1 in the direction indicated by the arrows P1, P2 after said pivoting. Said forces will be smaller than in the situation in which forces are directly exerted on the package 1 in the direction indicated by the arrows P1, P2 from the position that is shown in Fig. 4.

The folding together of the wall members as well as the forming of bonding seams by heat sealing is known per se, for example from International patent application WO 00/372445.

As already described above, the package can be manufactured in a continuous process in a simple manner. It is also possible, of course, to form the package of individually interconnected wall members. A polyethylene foil may be used as the material for the package 1. It is also possible, however, to use other strip-shaped foils from a laminate, for example, such as metallized polyester, polypropylene/polyethylene or polyester/polyethylene.

It is also possible to use another package shape, for example by bonding together the edges positioned opposite the edges 18, 19, as a result of which a flat bag is obtained, as it were.